

# ZHANG, HONGBAO

HKUST, Clear Water Bay, Hong Kong SAR

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Personal Website: <https://zhbb15.github.io>

## EDUCATION

**The Hong Kong University of Science and Technology**

*September 2025 - Present*

Predoctoral Research Fellow, Department of Finance

**The Chinese University of Hong Kong, Shenzhen**

*2023-2025*

Master of Science in Data Science, GPA: 3.75/4.0

**Xiamen University**

*2019-2023*

Bachelor of Arts in Economics, GPA: 3.63/4.0

**The University of Hong Kong**

*January 2022 - May 2022*

BSc. Exchange, Faculty of Science

## RESEARCH EXPERIENCES

**To Think or Not to Think: Exploring the Unthinking Vulnerability in Large Reasoning Models**

*Coauthors: ZHU Zihao, WANG Ruotong, KE Xu, LYU Siwei, WU Baoyuan*

*Link*

- Identified a critical *Unthinking Vulnerability* in Large Reasoning Models (LRMs) allowing reasoning bypass via delimiter manipulation.
- Proposed *Breaking of Thought* attacks (training-based and training-free), breaking reasoning reliability.
- Introduced *Monitoring of Thought*, a framework to enhance LRM efficiency and safety.

**HID: A Hierarchical Framework for Multi-Granularity Visual-Textual Inconsistency Detection**

*Coauthors: ZHU Zihao, WU Guanzong, LYU Siwei, WU Baoyuan*

*Link*

- Proposed a novel hierarchical framework (HID) for detecting multi-granularity visual-textual inconsistencies in Vision-Language Models (VLMs).
- HID parses captions into semantic graphs and performs hierarchical, iterative evaluations to verify consistency at varying granularities.
- Constructed MVTID, the first benchmark for this task, and demonstrated HID's superior performance on public benchmarks, establishing it as a powerful tool for data quality assurance in VLMs.

**Adaptive Parameter Tuning of Evolutionary Computation Algorithms**

*Coauthors: Kwok Pui Choi, Tze Leung Lai, Xin T. Tong, Ka Wai Tsang, Weng Kee Wong*

*Link*

- Consider the problem of adaptive parameter tuning and propose a novel approach, with optimal properties that achieve oracle bounds, to meet the challenges in new important applications in the big-data multi-cloud era.

**Analyzing Underlying Sentiment Discrepancies: Executives vs. AI in Earnings Calls**

*Capstone Project*

- Developed the Human-AI Sentiment Discrepancy Index to analyze sentiment discrepancies between corporate executives and LLMs and underscore the correlation between the index and company's financial and stock performances.
- Processed conference transcripts, called API setting LLMs and applied NLP to extract sentiment signals for financial analysis.

**A Quantitative Investment Strategy of ETFs based on Ensemble Learning of Technical Indicators**

*Undergraduate Thesis*

- Utilized Ensemble Learning to train models on 50+ manually calculated ETF technical indicators, creating portfolios based on predicted rising probabilities and comparing performance across return and risk metrics. Implemented dimension reduction, cross-validation, and back-testing across ETF pools of varying market values and industries to evaluate and refine strategies.

PROJECT EXPERIENCE

Decision-based Black-box Adversarial Attack Using PSO Optimization

- Introduced AdvPSO, a PSO-based method for crafting effective adversarial examples in black-box adversarial attack.

MULTIMODAL GENSHIN, LAUNCHED!

- AI system integrating an aligned LLM with RAG, and a finetuned Diffusion Model to help Genshin Impact players.

WORK EXPERIENCE

Electricity and New Energy Group, ZHESHANG SECURITIES

Shanghai

Daily Intern

May 2022-September 2022

- Conducted financial research on electricity and new energy industries, including authoring 3 industry research reports.

CHINA EVERWIN ASSET

Shenzhen

Daily Intern, Department of Financial Engineering

June 2021-August 2021

- Assisted in developing a long-term quantitative fund evaluation model using Python-processed 30 factors and model training.

ACHIEVEMENTS

Outstanding Graduates, Duan Family College, CUHKSZ

Spring 2025

Academic Outstanding Scholarship (First Tier), CUHKSZ

Spring 2025

Fung Scholarship, HKU

Spring 2022

XMU Anniversary Sportsmanship Scholarship, XMU

Spring 2022

National Project in Innovation and Entrepreneurship Training Program for College Students, XMU

Spring 2022

Contemporary Undergraduate Mathematical Contest in Modeling, First Honor in Fujian Province

Fall 2021

Academic Excellent Scholarship, XMU

Fall 2020

Xiamen Universities Football League Tournament, Champion

Fall 2020

OTHER INFORMATION

Language skills: Chinese (native), English (fluent). IELTS: 7.5/9.0 (2025, 2020); GMAT: 680 (2021).

Computer skills: Proficient in Python, MS office and R. Intermediate user of STATA, SPSS, SAS and Matlab.

Interests: Football, Trekking